DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
9/1/04

Current Human Exposures Under Control

Facility Name: **Wilson Jones Company (Formerly Acme Visible Records)**
Facility Address: **1000 Allview Drive, Crozet, VA 22932**
Facility EPA ID #: **VAD003124989**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__✓__ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EIs developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Are groundwater, soil, surface water, or air **media** known or reasonably suspected to be **"contaminated"** [1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	✓			**See Attachment 1**
Air (indoors) [2]	✓			**See Attachment 1**
Surface Soil (<2 ft)			✓	**See Attachment 1**
Surface Water	✓			**See Attachment 1**
Subsurf. Soil (>2 ft)	✓			**See Attachment 1**
Air (outdoors)	✓			**See Attachment 1**

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

✓ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

✓ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Post-closure Permit issued June 1999, May 2004 Post-closure Care Compliance Monitoring report, 2001 Annual Report, 1992 Site investigation report compiled by Roy F. Weston, existing monitoring information

See Attachment 1

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	N	N	N	N	N	N	N
Air (indoors)	N	N	N	N	N	N	N
~~Soil (surface, e.g., <2 ft)~~							
Surface Water	N	N	N	N	N	N	N
Soil (subsurface e.g., >2 ft)	N	N	N	N	N	N	N
Air (outdoors)	N	N	N	N	N	N	N

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

__✓__ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):
Post-closure Permit issued June 1999, May 2004 Post-closure Care Compliance Monitoring report, 2001 Annual Report, existing monitoring information

Rationale provided in Attachment 2

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Not Applicable

If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

Not Applicable

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

____ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Wilson Jones Comany** facility, EPA ID # **VAD003124989**, located at **Crozet, VA** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

_✓_ IN - More information is needed to make a determination.

Completed by (original signed) Date 9/22/04
Kurt A. Stafford
Environmental Engineer Senior
Virginia Department of Environmental Quality

(original signed) Date 9/23/04
Leslie A. Romanchik
Director, Office of Waste Permitting
Virginia Department of Environmental Quality

Locations where References may be found:

Physical Location:
Commonwealth of Virginia
Department of Environmental Quality
Division of Waste Program Coordination
629 East Main St.
Richmond, Virginia

On the Internet via:
www.deq.virginia.gov/waste/pdf/vad003124989a.pdf

Contact telephone and e-mail numbers:

(name)	Kurt Stafford
(phone #)	(804) 698-4005
(fax #)	(804) 698-4383
(e-mail)	kastafford@deq.virginia.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS

WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

ATTACHMENT 1 - CONTAMINATION

Groundwater (YES):

Facility groundwater monitoring activities have identified elevated concentrations of inorganic and organic constituents in groundwater in the immediate vicinity of the former wastewater lagoon (surface impoundment) closed as a landfill. Groundwater monitoring wells are located to identify most potential releases from facility SWMUs in addition to the regulated unit. The facility is currently operating an in-situ hydrogen release groundwater remedy that is effectively reducing groundwater concentrations at the point of compliance for the regulated unit. Table 3-4 from the May 2004 Post-closure Care Compliance Monitoring Report summarizes recent groundwater concentrations for organic and inorganic constituents in addition to groundwater protection standards established by the post-closure permit. All potential releases from all SWMUs have not been evaluated at this time. The TCE concentration of 84 ppb measured in MW-15 is not believed to be related to a release from the regulated unit. In September 2004, sampling was performed on several production wells located at the facility. The rationale of this sampling was to check the vertical extent of groundwater contamination.

Indoor Air (YES):

Direct measurements of indoor air quality or soil gas have not been made at the facility to date. With consideration to the preliminary success of the current in-situ remedy in place, existing groundwater data indicate that there have been exceedances of MCLs for TCE and Vinyl Chloride (volatile organic constituents) in groundwater at the facility. Therefore, the conservative assumption that indoor air concentrations may be above acceptable levels must be made. This determination is based upon assumed partitioning of groundwater concentrations to air.

Surface Soil (IN):

Known potential sources of soil contamination, outside of the facility, are below grade (incineration ditches) or beneath a RCRA C cap (closed surface impoundment); therefore, surface soil contamination is not known to be present in these areas. Surface soil under the manufacturing area located inside the facility is potentially contaminated. Further study is needed to determine the status of this soil.

Surface Water (YES):

A March 1997 surface water sample was collected at location SW-1B on the Powel's Branch of Lickinghole Creek which bisects the southwestern part of the facility (see attached map). The measured concentration of 500 ppb for this sample, which is on the northwestern property boundary exceeds the Virginia Water Quality Standard of 27 ppb for TCE in surface water classified as a public water supply, but is below the standard of 810 ppb for all other surface waters. The results of that sampling event showed decreasing concentrations as the stream traversed the facility. The stream sample collected hydraulically downgradient from the regulated unit and area of known contamination was at 9.2 ppb during the same sampling event. This is below the water quality standard but the SDWA MCL for TCE is 5 ppb; therefore, surface water contamination remains a consideration at this time.

Subsurface Soil (YES):

The surface impoundment closed with wastes in place and the incinerator trenches have not been closed or completely evaluated. Data from the 1988 investigation reports concentrations in samples from test pits in excess of the Residential RBC for benzene. In addition, test pit and soil boring data from the 1991 investigation at the incineration trenches showed concentrations for naphthalene, bis(2-ethylhexyl)phthalate, barium, arsenic and lead above both Residential and Industrial RBC values.

Outdoor Air (YES):

Historic Concentrations of TCE and its daughter products have exceeded their respective MCLs in monitoring wells downgradient of the regulated unit as wells as MW-15 which appears to be impacted by another source on site. Therefore, the appropriate conservative assumption that air concentrations may be above acceptable levels must be made. Because no direct measurements of outdoor air or soil gas have been made, this determination is based on assumed partitioning of groundwater concentrations to air.

ATTACHMENT 2 – EXPOSURE PATHWAYS

The facility is located in an industrial area. There are no daycare facilities or residences located on-site. Furthermore, the facility in not currently active and is secured against trespassers. There are no known groundwater wells on-site and no demonstrated discharge of on-site groundwater to surface water. A potential off-site source of TCE to the Powell's Branch of the Lickinghole Creek has been reported to the Valley Regional Office of the Virginia Department of Environmental Quality.

Groundwater (NO):

There are no residential wells or groundwater discharge points on the facility. Groundwater quality conditions for most of the facility are well documented (see various groundwater quality assessment and routine groundwater monitoring reports). There are no reported groundwater uses in the immediate area and the plume remains on site. The measured TCE concentration gradient in the stream does not suggest groundwater discharge to surface water. The groundwater pathway is not complete for any potential human receptors. In September 2004, sampling was performed on several production wells at the facility. The rationale of this sampling was to check the vertical extent of groundwater contamination. Composite samples of PW-2 and PW-3 indicate that concentrations are lower than previously identified but remain in excess of SDWA MCLs. Discrete intervals are currently being sampled at all three production wells in an attempt to identify the vertical distribution of the organic solvents.

Indoor Air (NO):

The edge of the known contaminant plume is located 300 feet hydraulically downgradient from the manufacturing facility which is located across the railroad tracks from the area of known waste management activities. In September 2004, sampling was performed on several production wells at the facility. The point of this sampling was to check and delineate the vertical extent of groundwater contamination. There are no known sub-grade structures and the floor of the manufacturing facility is in good condition. The facility is not active and no construction activities are proposed at this time. There are two small sheds on site which are used for storage and accessed infrequently. The facility is secured and the area of known contamination behind the manufacturing building is fenced to prevent trespassing. Based upon the situation described above, there are no complete exposure pathways for indoor air.

Surface Water (NO):

Surface water concentrations decrease as the stream traverses the site to a recent measurement of less than 5 ppb at the property boundary. The entire section of Powell's Branch that is on the facility is behind a fence that is maintained by the facility. Based upon the situation described above, there are no complete exposure pathways for surface water.

Outdoor Air (NO):

As noted, the TCE and vinyl chloride concentrations have been measured above the MCL. Because there have been no direct measurements of outdoor air or soil gas, the determination that air concentrations may be above acceptable levels is based on partitioning of groundwater concentrations to air. Exposure to unacceptable concentrations in outdoor air is not expected due to the relatively low concentrations of TCE (recent high concentration of 84 ppb) and vinyl chloride (recent high concentration of 7.4 ppb) in groundwater at the most contaminated wells on the site. In addition the facility is secured and inactive. Therefore, the potential for exposure is severely limited. Based upon the situation described above, there are no complete exposure pathways for outdoor air.